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## **Farm and Home Proprietorship and Real Estate Mortgage Indebtedness.**

### **I. INTRODUCTION.**

A criticism of the work of the eleventh census is especially difficult, because the various parts of the work are of such different quality, and because only those who have had some experience can appreciate the difficulties which lie in the way of a successful transaction of a statistical investigation on so large a scale and of such complexity. No other part of the eleventh census, or of any census, was surrounded with so many difficulties as the inquiry which is reported in the two volumes on Farm and Home Proprietorship and Real Estate Mortgages. Such an inquiry was entirely novel, at least on so great a scale. Statistics of mortgage indebtedness had, indeed, been gathered by some foreign countries and by the labor bureaus of several states in this country. The most notable of these was, perhaps, that of Mr. J. S. Lord, who, as secretary of the Illinois labor bureau, had made in 1888 an admirable report on mortgages in Illinois.<sup>1</sup> This report really furnished the model for the method of handling the statistics obtained in the census inquiry. But no attempt had ever been made before in connection with any national census enumeration to cover a subject so vast and so intricate in its details.

The novelty and lack of precedents were not, however, the only difficulties, especially in the way of getting information concerning real estate mortgage indebtedness. The inquiry was set on foot at the last moment of preparation for taking the census. It concerned mat-

<sup>1</sup> Illinois Labor Statistics Bureau. *Fifth Biennial Report*.

ters on which people generally, and Americans particularly, are very averse to giving information. It was denounced as inquisitorial, as prying into private affairs and extending government authority to the detriment of the individual. So intense was the feeling that some people advised resistance to the Census Office in its attempt to get this information.

Again, the data were of such a character, and the territory to be covered was so large, that it was quite hopeless to expect accurate returns if they were collected in the usual way. The individuals interested could not be trusted to give correctly the facts concerning the existing indebtedness even if they gave them to the best of their knowledge. Incumbrance assumes many guises and exists under many names. To secure a terminology which would be universally applicable and understood was out of the question, and a wide acquaintance with the customs of different sections of the country was necessary in order to frame a proper schedule of questions.

All these difficulties made the task proposed as difficult as its masterly success was brilliant and complete. If it be true, as just now remarked, that no statistical inquiry ever undertaken by any government was more difficult than the collection and proper presentation of the facts of mortgage indebtedness, certainly none has ever been carried to conclusion "with more skillful care and conscientious fidelity." Its success far exceeded the expectation of statisticians who had studied such matters for years. The value of the information obtained well repaid the expense of getting it, and has probably reconciled the people to a renewal of the effort. A brief review of the means taken to get the data wanted will bring out clearly both the difficulties and the way in which they were met.

As has been already said it was at the last moment of preparation that Congress directed the Census Office to undertake these investigations. For several reasons it was decided not to entrust the work entirely to the regular enumerators, but to rely upon several sources of information. This was a wise decision. Only the less objectionable questions concerning ownership and debt were put upon the population schedule.<sup>1</sup> These were as follows :

“ Is the home you live in hired, or is it owned by the head or by a member of the family ?

If owned by the head or a member of the family, is the home free from mortgage incumbrance ?

If the head of the family is a farmer, is the farm which he cultivates hired, or is it owned by him or by a member of his family ?

If owned by the head or a member of the family, is the farm free from mortgage incumbrance ?

If the home or farm is owned by the head or a member of the family, and mortgaged, give the post office address of the owner.”

The cases in which the enumerators failed to get answers were investigated through the mail and by means of special agents. The results were gratifyingly complete. Of the total farm families only 1.24 per cent were not heard from on the question of ownership, and of the home families only 2.25 per cent ; while the determination of the fact of incumbrance was unsuccessful for 1.26 per cent of the farm owning families and for 2.10 per cent of the home owning families. As to the amount of incumbrance, 18.35 per cent of the farm owning families and 25.98 per cent of the home

<sup>1</sup> Eleventh Census. Population. I : ccv, Inquiries 26-30.

owning families were not heard from.<sup>1</sup> In other words, the returns are practically complete for ownership and for the fact of incumbrance.

In deciding upon the plan of investigation into mortgage indebtedness similar skill and wisdom were shown. Consideration of the plan adopted will be entered on later. Meantime it should be noted that the work was very thoroughly done. As the superintendent of the census put it, "the agents of the Census Office have . . . overhauled the records in every state and territory. They have travelled on horseback and on foot through the most sparsely settled districts of our vast domain in search of mortgages, and have done their work so industriously and so thoroughly that we now have on file in Washington as a result of their labor the abstracts of about nine million mortgages."<sup>2</sup>

In short, the volumes under consideration are easily among the best portions of the census. They show painstaking conscientiousness in the manipulation of the data, a thorough knowledge of the proper methods of approaching the subject, an appreciative sense of the difficulties and defects, and a skilled knowledge of the necessary methods. An examination of the first few pages of either volume furnishes strong proof that the editors have in a high degree what may be called a sense of statistical propriety. For there we find, what is too rare in census reports, a full account of the history of the projects to collect the statistics, a recital of the instructions to enumerators, a detailed statement of the methods employed in the tabulation, and a number of other details explanatory of the technicalities employed in marshalling the returns for analysis. The

<sup>1</sup>Eleventh Census. Farms and Homes. 7.

<sup>2</sup>Am. Stat. Ass'n. *Publications* 2: 356 (1891).

presentation of these matters is very helpful to the reader in forming a critical judgment of the volumes.

The work is, then, of a high grade of excellence, and there is but little room for important criticism. In addition to the advantage derived from the peculiar suitability of the editors for their work the inquiry had the benefit derived from a high grade of special agents. They seem to have been, in the main, men picked especially for the collection of the statistics of mortgages. These reflections lead to one or two *comments of a general character*:

## II. CHARACTERISTICS OF THE TWO VOLUMES CONSIDERED TOGETHER.

1. The investigation into the subjects under review was so highly successful that it should, by all means, be repeated. After the experience recorded in these two volumes there can be no doubt, as indeed the editors themselves point out, that the facts sought can be ascertained accurately and with a high degree of completeness. Commissioner Carroll D. Wright said as long ago as 1887: "Questions of renting, of ownership, of the acreage of farms and of alien ownership are entirely within the possibilities of census taking, without enlarging the field of operation." We may now add that the feasibility of collecting mortgage statistics on a large scale is also demonstrated.

2. The same editors should be in charge of the next investigation, and, as far as possible, the same special agents. This is a matter in which experience counts for a great deal. If the inquiry is committed to the same management as before, the country may reasonably hope for an improvement in the work. If it is entrusted to new editors, however able they may be to cor-

rect any mistakes of their predecessors, they will surely waste time and impair the work by having to learn lessons which the previous editors already know. Moreover, it is absolutely essential that this and kindred portions of the census be kept absolutely free from the suspicion that they are being used for any but scientific purposes and the promotion of the public good.

3. Fault might be found with the bulk of the volumes. It is a question whether all the important information of the two could not have been presented in one volume by judicious grouping of related data. This criticism is not of much weight except in so far as it is based on a plea either that such combinations of figures could be made, or that part of the matter included in the reports is unnecessary or fails to teach anything of importance. That the latter is to a certain extent true may be illustrated by reference, for example, to the volume on proprietorship.<sup>1</sup> The reader has just been occupied with a discussion of the relation of building and loan associations to home ownership and is transferred—without break—to “sales of real estate in Massachusetts” in order to learn the frequency with which the land changes hands. The statistics quoted from Massachusetts are so meagre and throw so little light on the subject that they are of very little value for the purpose and might as well be omitted. This is all the more true because the census itself has no figures with which to supplement those from Massachusetts.

4. A more important, and perhaps better founded, criticism may, however, be directed to another point. The various groupings of the returns follow one another without sufficient pains being taken to correlate them

<sup>1</sup> Eleventh Census. Farm and Home Proprietorship, 52,f.

when they are related, or to mark clearly the transition from one to another when they are not closely related. The transition is too abrupt. Both volumes would be greatly improved if they each had, first, a short summary of the conclusions to be drawn from each grouping of the figures,—that is, from each set of tables; and, secondly, a general, but not too condensed summary of the main results of the whole investigation. For example, we find in the report on mortgage indebtedness coördinate presentations of the following topics :—(1) the ratio of mortgage indebtedness to the true value of all taxed real estate; (2) a comparison of incumbrance with the value of the mortgaged acres; (3) a comparison of incumbrance with selling price; (4) a comparison of incumbrance with farm value, per acre. A better arrangement would be to make a general head of “the relation of incumbrance to value,” and put the others as sub-topics. In this way their relations would be clearer, comparison would be easier, and the presentation could be made more concise. If a similar plan were followed wherever possible, and the suggested summaries of the principal results made, the volumes would doubtless be more serviceable to the average user of them. They present a kind of pathless wilderness of figures. A few pathways cut through them would introduce the orderliness of the well planned grove into the natural forest.

5. The diagrammatic presentation is, perhaps, unnecessarily profuse. Graphic representation of facts is, of course, sometimes necessary and nearly always helpful, especially if the statistics in a tabular arrangement do not readily and clearly show the relationships which they are intended to bring out. Numerous diagrams of



the character of those given here are more desirable in volumes with a wide popular circulation.<sup>1</sup>

### III. THE VOLUME ON PROPRIETORSHIP AND INDEBTEDNESS OF FARMS AND HOMES.

The volume opens, as has already been pointed out, with a history of the movement which led to the investigation, a description of the plan for collecting the statistics, and an outline of the scope of the inquiry. This is followed first by the presentation and analysis of the facts of proprietorship, the word being used in the legal sense to include both owners and tenants, and then by the discussion of value and incumbrance and the interest on incumbrance. The next eighty pages are devoted to a description of the proprietors and lastly come the general tables, which occupy the second half of the volume.

*Terminology.*—The first question one asks in considering such a work as this is : Was the inquiry worth while ? In the case of this investigation the question has special significance because of the fact that the same ground is already partly covered in another way by another portion of the census. The statistics of agriculture include the number of farms and their proprietorship. In that case the farm is the unit of investigation ; in the present work, the family. Again, the statistics of population include a report on dwellings and families which presents for a portion of the subject, data of the same general kind as are given in the volume under discussion. In the one case the dwelling is the unit ; in the other,

<sup>1</sup> As an illustration of such matter which adds but little to the worth of the report may be mentioned the diagrams which face page 122 of the volume on mortgages. However, this again, is a comparatively small matter, and is mentioned only in behalf of brevity.

the family. There is therefore in these various investigations more or less duplication of work and of results. While there may be some question whether all the necessary information concerning ownership and indebtedness could not have been gotten by the enumeration of "farms" and "dwellings and families," there is none, in the opinion of the reviewer, concerning the desirability of presenting that information in the form in which it is given in this volume,—that is to say, with the family as a unit. The value for sociological purposes of such a mode of presentation is very great. Whatever objection that unit is open to—and it is open to much—it is a better unit for estimating the economic and social conditions of the average American than an area called a farm, which may vary in extent from 5 acres to 1,000, and in value from \$50 to \$75,000; and for similar reasons better too, as a unit, than the "dwelling."

Although, however, the sociological advantage of presenting the data with the family as a unit is very great, objection may be made to the meaning of the term as defined in the census. A reader seeking information about the distribution of wealth would naturally turn to this volume in order to learn something about the ownership of property by individuals and families, as these words are familiarly used. Unfortunately, however, the editors of the report were hampered by having to use as a unit the term family in a technical sense already fixed for them by the census reports on population. Whatever fault is to be found with this use of the word, the editors cannot, therefore, be charged with it.<sup>1</sup> It is to be regretted that a classification of families was

<sup>1</sup> For the definition of a family in the Instructions to Enumerators, 1890, see above p. 62.

not given in connection with the figures on ownership. Such a classification as was made in the census of Massachusetts<sup>1</sup> in 1895 would have added much to the value of the work under discussion for all who looked to it for light on the matter of prosperity of our people. The Massachusetts report classifies families according to the number of persons in them, and gives the number of each class. For example, in North Adams we find that there were 550 families containing two persons each; 348 containing seven persons each, etc.<sup>2</sup> Of course, the addition of such a classification of "owning and occupying families" would increase the work of gathering and handling the returns, but not to any great extent, since such a classification is made for other purposes. At any rate much would be gained even if the classification were carried only so far as to enumerate occupants of hotels, almshouses, etc., by themselves so that they could be excluded from the total in calculating the percentages of owning families, etc. To be sure, "considered as regards great bodies of population the presence of these large 'census families' does not probably have any very appreciable effect on the average size of the normal family."<sup>3</sup> But it must vitiate the statistics for small political units, perhaps in some cases, for whole states.

*Instructions to Enumerators.*—There are several points in the instructions<sup>4</sup> on which there is at least room

<sup>1</sup> Mass. Census of 1895, I : 339-455.

<sup>2</sup> *Idem*, I : 387.

<sup>3</sup> Eleventh Census. Population, I : clxxxviii.<sup>1</sup> <sup>1</sup> [Normal families and artificial or arbitrary families such as hotels, prisons, schools, camps, etc., were distinguished by the Mass. censuses of 1885 and 1895. The average size of the normal families was 4.45 persons in 1885 and 4.57 in 1895. The average size of all families was only .13 persons larger in 1885 and .08 persons larger in 1895.—W. F. W.]

<sup>4</sup> Eleventh Census. Farms and Homes, 5.

for a difference of opinion. The third one reads: "If a person owns and cultivates what has been two or more farms and all are not mortgaged, the several farms are to be counted as one farm and as mortgaged." If we remember that the unit of investigation is the family, this instruction is correct so far as it guards against the duplication of families in the returns. But when we come to consider the value and incumbrance of the farms reported as occupied by their owners, there is danger that obedience to this instruction may have swelled the figures in such a way as to be misleading. There are cases in the middle west in which a man who lives in town owns a farm which he supervises, leaving the immediate care to a salaried superintendent. The owner cultivates but does not occupy. He cannot be included among owning occupiers or among hiring occupiers. For the purpose of getting the total value of farms, the case is not different, if the owner lives on and cultivates one farm and owns and cultivates another in the manner described. The result of "lumping" the farms is that it swells the value of the owned and occupied farms and diminishes the apparent relative burden of incumbrance. In the seventh instruction we read: "If the same person owns and cultivates one farm and hires and cultivates another farm, he is to be entered upon the schedule as owning the farm he cultivates." In this case the hired farm would seem not to appear in the valuation of hired and occupied farms; while in the case previously described the farms owned and cultivated but not occupied would, as said, go to swell the total value of the owned and occupied farms. The result would be to diminish the total value of the hired and occupied farms relatively to the owned and occupied. It would seem that if the *hired*, cultivated, but not occupied farms

were not included in the sum of the values, the *owned*, cultivated, but not occupied farms should also have been excluded. Several of the instructions are so framed that while they avoid duplication of persons and families they either increase or diminish according to circumstances the value and incumbrance.

#### CRITICISM OF RESULTS PRESENTED.

*Scope of the inquiry*.—The purpose of the inquiry in the last resort, could be only to throw more light on the economic condition of our people. It is unfortunate, therefore, that its scope was not somewhat wider. Especially in the portion relating to value and incumbrance, the statistics are defective for any characterization of the welfare of the people of the country. No values are given for the homes of tenants nor for unincumbered homes occupied by owners; and on the other hand the incumbrance that is taken account of is that on farms and homes which are occupied by their owners. No account is taken of the incumbrance on hired farms and homes. The decision thus to limit the scope of the work makes the results obtained an imperfect guide for determining welfare. The report furnishes no means whereby we may know "whether hired farms are less or more valuable than those that are owned, nor whether farms and homes occupied by owners free of incumbrance are less or more valuable than those that are occupied by owners subject to incumbrance." To be sure, the report on mortgage indebtedness largely covers the omission, but this fact is perhaps to be regarded rather as a reason for the collation of the reports in one volume than as a reason for the omission of the information in the volume under review. The absence

of the information mentioned very largely impairs the interest of that portion of the report which deals with value and incumbrance. The other topics are presented with sufficient completeness. Much praise is due the editors for the judgment displayed in the selection of modes of grouping their information to bring out various conclusions. Especially valuable for their sociological teachings are the comparative tables of proprietorship in city and country, and between cities of different population, the record of the purposes of incumbrance, and the discussion of the character of the proprietors.

*Ownership and Industrial Classification.*—The grouping of the returns showing proprietorship of homes in cities according to their population might well have been supplemented with a short table giving the figures for cities of similar size but different industrial and social character in various parts of the country. For example, a comparison of proprietorship in a city like Lawrence, Mass., with that of such places as Peoria, Ill., and Lincoln, Neb., should throw some light on the comparative progress of the industrial and social classes which predominate in these different places. It would furnish some answer to the question what classes in the community constitute most largely the home owners. It is not infrequently said in some places that the wage earners are to a large extent the owners of their homes. While this is true in certain localities it is probably very far from the truth in most. In the absence of statistics for the separate industrial classes such a comparison as is suggested would help to answer the question. According to a statement in the report it was at first planned to gather the data for the separate classes, but the expense was prohibitive.

*Ownership and Density of Population.*—The discussion of the relation between farm tenancy and density of population is in some respects obscure because of the varying size of the farms.<sup>1</sup> This is a defect in Table 16. A comparison might fairly be made between places in which the owners cultivate farms of about the same size. No fair comparison of density of population in different places can be made unless the areas are approximately equal. A comparison, for example, of the ratios between tenancy or proprietorship and density of population in states like Arizona and Illinois can hardly be of much value. For, in the first place, as already remarked, the areas are not equal; and, in the second place, the whole extent of one state is available for occupancy while of the other only a portion is habitable.

In presenting the returns groupings are made to illustrate some points which are hardly important enough to be elaborated. One of these has already been mentioned, namely, the record of land sales in Massachusetts. The remark applies with more or less force to the treatment of farm and home purchase as financial operations.<sup>2</sup>

*Ownership and Loan Associations.*—A discussion is given of the relation of proprietorship to the prevalence of building and loan associations.<sup>3</sup> Its purpose is to throw light upon the question whether the ownership of homes has been especially dependent on the establishment of these associations or whether homes would have been acquired had there been no associations of this sort. In order to determine this point we need figures showing whether, in places where building and loan associations are prevalent and borrowers numerous,

<sup>1</sup> *Idem*, 41, f.

<sup>2</sup> *Idem*, 42, 47.

<sup>3</sup> *Idem*, 47-51.

the percentage of home-owning families is high; and also whether, in places of similar social character but without building and loan associations, the percentage of home-owning families is small. The tables give us only the percentage of home families occupying hired homes, the number of borrowers, and the percentage of borrowers of families. They cannot, therefore, be of much help in settling the question, for, in the first place, there are too many other sources whence intending home builders can now secure loans, and these sources are altogether unknown both as to character and amount; and, in the second place, building and loan associations are as likely to be a result as a cause of demand for houses, and they would be established in a community where they were not already in existence, only when other sources of loans were absent or strictly conditioned.

*Tenancy and Sales.*—In passing it may be noticed incidentally that tables like the one given, showing the average population to each deed of real estate in Massachusetts from 1880 to 1889,<sup>1</sup> really show us nothing as to the high or low degree of tenancy. It is argued that "if real estate changes ownership infrequently, the inference may be either that the real estate is so cheap as to be undesirable or else so valuable as to be beyond the reach of the masses of the people with respect to ownership. On the other hand, if the transfers are frequent the inference may be that the ownership of real estate is easily obtainable."<sup>2</sup> But investments in real estate depend on other causes than the desire of people to own their own homes. They depend, for example, on the rates of re-

<sup>1</sup> *Idem*, 53, Table 21.

<sup>2</sup> *Idem*, 52.



turn from other investments ; on the general condition of business ; and, possibly, on peculiar local conditions, which may or may not make real estate ownership profitable. For these reasons it is doubtful whether the table deserves even the small space assigned to it.

*Interest.*—Still further, it is very doubtful whether the facts presented under the head of interest charge are very reliable. “The rates were reported mostly by the debtors, except that reports were obtained mostly from county officers in Alabama, Arkansas, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, and Virginia,”—that is, in one-fourth of the states of the country.<sup>1</sup> The question called for the actual rate of interest or “what the use of the money has cost regardless of what the contract may specify.” In the opinion of the editors, if there is any error in the report of the interest rate it is a failure to make it as high as it really is. Their ground for this belief is that “mortgage contracts are often somewhat complicated in respect to the rate of interest, and all debtors have not education enough to enable them to compute the real rate of interest borne by the contract as distinguished from the standard rate under the law of the state.”<sup>2</sup> Where the interest was not given, the editors applied the average for the neighborhood ; where the principal of the debt was obviously too large, they deducted an amount equal to what the interest would have been on the basis of the rate prevalent in the neighborhood. It is probably a fact that debtors in attempting to give “what the money has cost” regardless of the stipulated rate of interest, would assign a figure too high, for men

<sup>1</sup> *Idem*, 103.

<sup>2</sup> *Ibid.*

tend to exaggerate such burdens. In many transactions, moreover, there would be no payment of the nature of interest, yet interest would be virtually paid. In some parts of the south, for example, farmers give mortgages on their farms, sometimes on their crops, to merchants in order to secure advances. They really pay their interest in higher prices, and reliable information shows that these prices range all the way from thirty to one hundred per cent higher than they would be if the customers were not in debt to the merchants. This statement applies to real estate mortgages as well as to certain other forms of incumbrance. Of course these draw-backs or defects are not a reason why an effort should not be made to determine the actual rate of interest regardless of the contract rate, but they show that the effort must be performed with great caution and that however carefully it is done it is likely to be considerably wide of the truth. The various modes of presenting the facts about interest charges seem to cover the ground very thoroughly.

*Description of Proprietors.*—Not the least interesting part of this whole report is the detailed description of proprietors.<sup>1</sup> The main divisions of the presentation are by color, place of birth, age and sex. The value of this portion of the work would be very much enhanced by such a summary as has already been suggested, for the multiplicity of different details is really bewildering.

The record of incumbrance is seriously affected by the failure to secure adequate information on crop liens. We are told that "the enumerators were instructed to regard crop liens as incumbrances on farms, but they overlooked the instruction, with hardly an exception, in the districts where crop liens were in force."<sup>2</sup> It is to

<sup>1</sup> *Idem*, 163-242.

<sup>2</sup> *Idem*, 14.

be hoped that this defect will be remedied in another investigation. In this connection it should be noted that all data of indebtedness other than debts of record are likely to be of doubtful value unless very carefully investigated.

Reports of values by public officials and by owners had to be relied upon very frequently. It might be possible in many cases to check such replies by getting a record of recent sales in the neighborhood. This would add but little to the labor of the enumerators. In conclusion it is scarcely necessary to say that the logical soundness of methods adopted for the calculation of averages, wherever that has been necessary to supply the places of unknown quantities, is unimpeachable and the mathematical accuracy of the operations is admirable. Careful search has failed to discover any error of importance.

#### IV. REAL ESTATE MORTGAGES.

*Value of Investigation.*—Seldom has any piece of statistical work been put forth of so high an order of merit as this volume. It is superior in the skill of its plan and execution to the work of the volume on farm and home proprietorship. The difficulties surrounding the acquisition of the data were more numerous and serious than in the case of the other volume; and the statistical skill shown in their manipulation is, if anything, greater. Several of the general criticisms which have been made are applicable to this report as well as to the other. There is not much room for criticism either of the statistical method employed or of the details of their application. Some points, however, must be noticed.

*Scope and Plan.*—This volume gives a more complete return of the landed indebtedness than does the report on proprietorship because it includes incumbrance not only on farms and homes occupied by their owners, but also on those occupied by tenants. The introduction describes the plan of investigation. A brief account is given of the several methods of inquiry into this subject, which have been made at various times and in various places, in order to set forth the merit of the plan finally adopted. That plan was to investigate real estate mortgages for the whole country, to find the mortgage movement during the preceding ten years by counties, the average life of mortgages, etc. The time available for the prosecution of the inquiry was so short that investigation by special agents was impossible, even if the expense of that method had not put it out of the question. The public records, therefore, had to be chosen as the main source of information. Obviously, however, these could not be relied on. In order to secure a check upon them, one hundred and two counties in various parts of the country were selected, and in these the amount of indebtedness was determined both from the public records and by personal inquiry. The proportion of error shown by the accurately determined returns, in the public records of these one hundred and two counties was used as a basis for correcting the errors of the record for the whole country. The success of the inquiry is very gratifying not only because of the interest attaching to the work, but because it has at last demonstrated, in the words of the editors, “that a statistical office in the United States . . . can determine the amount of the existing ‘recorded indebtedness of private corporations and individuals’ by direct methods, as certainly for crop liens,

chattel mortgages, judgments, etc., as for real estate mortgages."

To a clear understanding of the work of the volume it is necessary to explain briefly the process of establishing the amount of existing debt. If the same number of mortgages were made every year, the debt incurred within a period equal to the average life of the mortgages would be the actual debt at any given date. But the conditions are not uniform. Different numbers of mortgages are made every year. In order to get a mathematically representative mortgage we must have an equation of the time with the debt incurred. For instance, "a mortgage for \$500 enduring for five years, and one for \$1000 enduring for two years, are equivalent to one mortgage of \$1500 enduring for three years, when an equation of time and debt is established."<sup>1</sup> When we have determined the life of mortgage debt for a section we are able to say that one mortgage equal to the sum of all the mortgages actually made during each year, was made at a certain time of the year to endure for the period of average life of mortgages. At any given time, therefore, the existing mortgage debt, if no partial payments are made, is the sum of the debts incurred during the average life period, exclusive of those left unpaid from preceding life periods. The amount to be allowed on the average for partial payments was ascertained in the one hundred and two counties before mentioned. "The process then . . . consists simply in deducting from the original amount of the mortgages made during a period equal to the average life of mortgages in each county the amount of the partial payments made on all existing mortgages."<sup>2</sup>

<sup>1</sup> Eleventh Census. Real Estate Mortgages, 15.

<sup>2</sup> *Idem*, 16.

*Results Presented.*—Before proceeding to discuss the application of this method and its errors, we must review briefly the field covered. The first presentation of returns is the mortgage movement for ten years, showing the variations in the number and amount of real estate mortgages in various connections. Separate classification is made of state and railroad contracts, and mortgages are classified by their amounts. The data are used to get certain averages which are applied to the various states and territories by years to show the normal variation.<sup>1</sup> The next topic presented is the amount of mortgage indebtedness in force on January 1, 1890, and the increase in mortgage debt from time to time.<sup>2</sup> This is followed by a comparison of the mortgage indebtedness with the total value of real estate.<sup>3</sup> Various relations are ascertained between mortgages and population,<sup>4</sup> and the subject of interest is then taken up at great length.<sup>5</sup> A detailed account of the special investigation in the one hundred and two counties, the data for which were accurately ascertained, is given,<sup>6</sup> and followed by a short account of mortgages in foreign countries.<sup>7</sup> Four pages are then devoted to a summary of the results,<sup>8</sup> a feature which greatly increases the value of the volume.

*Criticism of Application of Mathematical Theory.*—Let us return now to a consideration of the plan adopted for the establishment of the amount of the existing mortgage debt. Although the process as explained is mathematically correct, there are certain conditions

<sup>1</sup> *Idem*, 25-84.

<sup>2</sup> *Idem*, 87-III.

<sup>3</sup> *Idem*, 115-152.

<sup>4</sup> *Idem*, 157-163.

<sup>5</sup> *Idem*, 167-265.

<sup>6</sup> *Idem*, 269-295.

<sup>7</sup> *Idem*, 299-305.

<sup>8</sup> *Idem*, 309-313.

which interfere with its accuracy when it is applied. The life of mortgages as shown by the records does not tally with their true life, allowance has to be made for partial payments, and there is great variation in different places, both in the number and amount of mortgages made from year to year. "Where the number and amount of mortgages made each year are small and highly variable," a large percentage of error may appear in computing the amount of the existing debt.<sup>1</sup> There is no way of obviating this, but for areas larger than a state the error cannot be very great. In order to determine the allowance to be made for partial payments, reliance was made upon the returns received from the one hundred and two selected counties. The investigators ascertained the debt actually on the records in these counties, and then computed the debt for the same date by the mathematical method before described. They then found the difference, and the "percentage of error of excess or deficiency of computed debt" which this difference represented.<sup>2</sup> The theory was that there would be practically as many errors in the over-estimation of values as in the under-estimation, and that these over-valuations and under-valuations would practically off-set one another, so that the average error between the computed and recorded values of mortgages in these one hundred and two counties could be applied to the various states and to the whole country. The theory of course is sound, but the practical value of the method depends, in the last resort, on the number of cases from which the average error is deduced. It is not enough to have a series of instances in which the errors of excess or deficiency in the computed

<sup>1</sup> *Idem*, 16.

<sup>2</sup> *Idem*, 17, ff. Table I.

debt off-set one another ; regard must be had also to the amount of variation between the different percentages of error. The larger the off-setting percentages are, even although they exactly off-set one another, the less reliable is the resulting average for application to unknown cases. A close determination of the mean error would theoretically require a very large number of cases and it is of course impracticable to secure this. Still, a number larger than one hundred and two is desirable. A number of counties not less than five for each state, should be chosen so distributed that they will represent the variations in the industrial conditions of the state.

Moreover, the more variable the total incumbrances (that is, the larger the differences between them) whose percentages of error off-set one another, the less reliable is the resulting average. For a small incumbrance in one or two of the sample counties may be representative of the majority and yet be over-balanced by another of the sample counties with a high total value and a high percentage of error, or *vice versa*. In other words, if we use only two counties in the state, the error in a county with a large value and debt practically determines the error for the state, even if the error of counties with small value and debt would be more representative of the majority of its counties. Indiana, for example, shows an error of only — 2.69 per cent on lots, and yet the different counties show errors varying from — 39.59 to + 18.03. In every case where the selected counties yield such a result, the test should be extended to two or three other counties in the state.

Still further, the counties chosen should not be too near one another. Those selected for Alabama are open



to criticism in this respect as well as on the point just discussed for Indiana. The two counties selected in that state are Green and Jefferson. They are separated only by one county, Tuscaloosa. The average value of the farm acre in Jefferson is given as \$10.81 and in Green as \$5.55. There are only two counties in the state with an acre value of \$10 or more, while there are thirty-seven with an acre value of less than \$5.55. Unless care is exercised to meet the conditions described, the average error is very likely to be unreliable not only for separate counties but for a whole state.

*Various Points.*—The results obtained are admirably presented. Perhaps the most interesting portions are “A Decade of Mortgages”, showing the mortgage movement from 1880; the “Interest on Mortgage Debt”; and the results of the “Special Investigations in One Hundred and Two Counties.” The presentation of mortgages in relation to real estate value and area is open to the same criticism that was made on the parallel presentation in the volume on farms and homes. The topical arrangement of this division is bad because the headings are not properly subordinated, and the lessons to be derived from the data are not of very great value. The principal reason for this is to be found, of course, in the fact that but little reliance can be placed upon the reputed values of acres and of lots. This fact is recognized, so far as lots are concerned, and no attempt is made to establish their value. The effort to do so for acres is aided, in this case, by the fact that there were available some data showing the average price of an acre sold for a series of years in Ohio, and for sundry years in Illinois, Minnesota and Wisconsin. The effort to present a proportion between mortgage indebtedness

and selling price is based on a more solid foundation, for records of recent sales are not very difficult to get.

A word may be said about the admirable series of averages presented for amounts of mortgages, the life of mortgages, rates of interest, etc. It is not uncommonly said that an average is of little value because it is so likely to be merely typical. This is by no means to be taken as a matter of course, as Mr. Holmes has shown in another place.<sup>1</sup> The averages here mentioned, especially for interest rates, are really valuable and representative.

Of as little reliability as the figures showing the relations between acre values and mortgages are also, to a large extent, those dealing with population and mortgages. The table, showing the number of persons to a mortgage,<sup>2</sup> is of little use. The point of interest is to determine the burden of mortgages. That depends on the number of mortgages, the number of mortgagees, the value of the property, and the amount of the mortgage. The proportion of population to number of mortgages tells us little, if anything, about this burden. If the rate of increase of the population is greater than that of mortgages the change in the burden of indebtedness is not shown by the percentages given. The table would have been more valuable if it had shown the percentage of growth of mortgage indebtedness per capita as compared with the percentage of growth of population for a series of years.

There is really little else in the volume to criticise. It would be an improvement if the summary of results had been extended. A four page résumé of so large a volume is too condensed to be of much value.

<sup>1</sup> Am. Stat. Ass'n. *Publications* 2: 421 (1891).

<sup>2</sup> Real Estate Mortgages, 158.

Future investigations should secure information about crop liens. These in the south take the place of real estate mortgages, and the real burden of the debt among the farming class in that section of the country is not shown in the report because of the omission of data concerning them. Indeed, to those who are not acquainted with the peculiar habits of the southern farmers the report in this particular is misleading, for it shows no considerable burden of indebtedness in the southern states. It is true that this subject was well considered by the editors of the volume and they decided that the cost of including these liens would have been too great and the result too unreliable. These reasons are of more force in the case of such things as chattel mortgages and court judgments than of crop liens, and it is to be hoped that the way will be made clear to include the latter. They really are real estate mortgages.

#### V. CONCLUSIONS.

In conclusion, I would reiterate my belief that the inquiry can be successfully carried out and ought to be repeated. The difficulty of doing it once in a decade emphasizes the desirability of a permanent census bureau. A single investigation is of little value. The value of the investigation, whatever it is, depends upon the continuance or repetition of such inquiries in order that comparisons may be made from time to time, and the trend of the phenomena be more clearly set forth.

The regular census enumerators might safely be entrusted with the collection of facts regarding proprietorship and tenancy so far as necessary to determine :

*a.* Whether the farm cultivated or the home occupied is owned or rented ;

*b.* Description of the "family."

Finally, as has been said already, the facts of the two volumes might well be presented in smaller compass. This could easily be done if the superfluous presentations in the way of unnecessary groupings to elucidate special points were reduced, the graphic presentations lessened in number, and certain unnecessary tables which have been mentioned omitted. The facts concerning ownership and tenancy should, however, be presented separately from those on *debt*, even if included in the same volume.

The success of the special agents in the southern states in doing work supplementary to the enumerators emphasizes the value of such special agents for the entire country. I do not believe that the expense would be an insuperable obstacle. Agents could be selected who are residents of the various states and more or less familiar with the conditions in their neighboring counties. They should be, so far as possible, legally trained. It is especially desirable to have such agents if it is intended to secure complete returns on the value of farms and the amount of debt, rates of interest and objects of debt. The *fact* of incumbrance can be easily secured by the ordinary enumerators.

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